to investment in the capital stock. What follows is a prescription generated by a macroeconomic model of the UK economy which is aimed at rectifying this under-investment in the period 1974–2000. In Chapter 5 it becomes clear that this is investment with a vengeance. A series of graphs illustrate the growth of 'optimal' gross capital stock from 1974 to 2000 (constant £1970).

The consumer goods sector increases from £8000 million to about £120000 million, the coal and coke sector from £1300 million to nearly £33000 million, but the prize must go to the electricity generating sector which increases from about £12000 million to about £400 000 million. Not surprisingly, output of electricity rises to 9000 TWh, about 40 times current levels, although confusingly 'consumers' demand only manages to double. Any temptation to dismiss this as an isolated, albeit appalling, aberration, in an otherwise sound book can be quickly dispelled by reference to the rest of the book which is richly endowed with howlers of similar decibels.

In the introduction, Mr Basu gives us an interesting insight into how his prescriptions would be turned into fact. He assumes 'that the Government would try to fix prices, wages and investment in different sectors, and exports and imports for the different final goods', also that 'all investment decisions are undertaken by the central planning authority'. Turning to energy matters, he reveals that according to his calculations taking into account capital and running costs, gas turbines (which he clearly believes are the only type of oil-fired power station available) are cheaper per unit of electricity supplied than coal or nuclear-fired power stations. He has also found a type of pumped-hydro system with a 90% availability.

In the first chapter, Mr Basu gives his exposition of the UK energy problem, using as his point of reference the UK Atomic Energy Authority 1976 evidence to the Royal Commission on Environmental Pollution which suggested a need for 104 GW of nuclear power in the UK by the year 2000. The current relevance of this work can be gauged by the CEGB's latest projections for England and Wales in that year. They foresee a winter peak demand of about 54 GW, of which about 25 GW would be nuclear.

The second chapter is devoted to a mathematical discovery model of UK oil reserves. The author claims that the model will enable companies to 'decide how much to invest given the uncertain nature of the outcome and the depleting stocks of reserves'. Geologists will find this an interesting claim. Equally interesting are some of the assumptions used in the model, such as constant technology for drilling, exploration and production, and an increase in the real price of oil between 1976 and 2000 by a factor of 14 or 26-fold.

Chapters 3 and 4 contain a description of the model which, broadly, is a multi-sectoral economic model based on Cobb-Douglas production functions estimated over the period 1948–74. Optimal control techniques are used to minimize a cost function to derive an optimal investment plan. Theoreticians may find some interest in delving into exactly where and why this model goes so bizarrely wrong (I have strong suspicions about the t-statistics in the regression equations) but analysts interested in policy need look no further than the results.

Chapter 5 contains a selection of the results, some of which have been mentioned before. The energy picture can be summarized as follows – figures in brackets represent the UK Department of Energy's latest 'high' case predictions: oil production 0–20 million tons (60 million tons), oil consumption 200 million tons (92 million tons), gas production 0 (16–17 billion therms), gas consumption 20 billion therms (16 billion therms), coal production 700 million tons (135–153 million tons), coal consumption 600 million tons (162 million tons), electricity production and consumption 9000 TWh (330 TWh).

This work is symptomatic of the tendency of econometrics to become immersed in elegant, but irrelevant mathematics, hence losing sight of the goal of policy formulation. As to recommendations, any teacher looking for a definitive example of problem misspecification, misunderstanding of technique and incorrect interpretation of results need look no further.

Steve Thomas
Science Policy Research Unit
Sussex University, UK

Energy security

ENERGY AND SECURITY

edited by David A. Deese and Joseph S. Nye

A Report of Harvard's Energy and Security Project, Ballinger, Cambridge, MA, USA, 1981, 489 pp.

OIL AND SECURITY IN THE ARABIAN GULF

Arab Research Centre (ARC), Croom Helm, London, 1981, 162 pp, £10.95

It is immensely instructive to read these two books together, because they present totally different approaches to a most important subject which is once again becoming neglected, as memories of the last big oil shock fade and the West settles down once again with comfortable conventional wisdom regarding falling oil prices and a world surplus of oil lasting for the foreseeable future. The report of Harvard's Energy and Security Project – which is rapidly gaining the status of a standard text on the subject – presents a view of the world's energy security problems as seen from the USA. The Arab Research Centre (ARC) contribution contains a collection of papers which represent the views of individuals from Gulf producing states and of Western countries which depend on their oil.

The Deese and Nye book brings together a wealth of material which, if not particularly new, is useful to have between two covers. The contributions on the Persian Gulf, Communist countries, North America (Canada and Mexico), Western Europe, Japan and the oil importing developing countries (Brazil, Phillipines, Pakistan and Turkey) are conscientiously researched